

Appl. No. 10/661,562
Amendment dated: June 15, 2005
Reply to OA of: March 15, 2005

REMARKS

Applicant has amended the claims to more particularly define the invention taking into consideration the outstanding Official Action. Claims 1 and 3 have been amended for purposes of clarity and to avoid the rejection of claims 3-8 under 35 USC 112. The amendments are fully supported by the specification as originally filed as would be appreciated by one of ordinary skill in the art to which the invention pertains. Applicants most respectfully submit that all the claims now present in the application are in full compliance with 35 U.S.C. §112 and are clearly patentable over the references of record.

The rejection of claims 3-8 under 35 U.S.C. 112 second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention has been carefully considered but is most respectfully traversed in view of the amendment to claim 3 which clarifies and further defines the first insulation layers as claimed in claim 1. These are not new elements but further define the cited elements in claim 1. Accordingly, it is most respectfully requested that this rejection be withdrawn.

Applicant notes that there is no prior art rejection of claims 3-8. In view of the amendment to claim 3 obviating the rejection under 35 USC 112, claims 3-8, which have not been rejected over the prior art are clearly allowable and early notification thereof in the next Official Action is most respectfully requested.

The rejection of claims 1-4 under 35 U.S.C. §102(e) as being anticipated by Chen et al. has been carefully considered but is most respectfully traversed.

Applicant wishes to direct the Examiner's attention to MPEP § 2131 which states that to anticipate a claim, the reference must teach every element of the claim.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2

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USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed.Cir. 1990).

Further, Applicant notes that he is one of the inventors of Chen et al.

Chen et al discloses an integrated chip diode, as shown in Figs. 13 and 14. This chip diode is manufactured by forming two different typed semiconductors 11 and 12 (i.e. 'p' type and n+ type) on the top and bottom surfaces of a wafer 10 (n+ type semiconductor) respectively and then forming a plurality of diodes 50 thereon. Each diode 50 comprises insulation materials 35, 36, and 14 encapsulated on sides thereof, a first and a second conductive metal layers 41 and 13 formed on the surfaces of the semiconductors 11 and 12 respectively, an insulation material 42 coated on a portion of the surface of the first conductive metal layer 41 and a third conductive metal layer 15 (or 16) sintered on the insulation material 14, such that the semiconductor 11 on the top of the chip diode can be electrically connected to the third conductive metal layer 15 on the bottom via the first conductive metal layer 41. Thus, two independent soldered conductive terminals 15 and 16 are formed at the same sides of the diodes 50 and electrically connected to each of different types semiconductors 11 and 12.

Applicant notes that the chip diode 50 claimed in the present invention, as shown in Figs. 10 and 11, though it also comprises p+ and n+ type semiconductors 11 and 12 having a predetermined depth formed on the top and bottom surfaces of a semiconductor wafer (n+ type) 10 respectively, the cross-sectional structures thereof are symmetrical in X and Y axes respectively, which are different from that disclosed in the citation with unsymmetrical structures in X and Y axes as would be appreciated by one of ordinary skill in the art.

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Moreover, the chip diode 50 claimed in the present invention comprises a plurality of parallel, spaced first grooves and second grooves formed on the p+ type semiconductor 11 along X and Y axes respectively, each of the first grooves and the second grooves being penetrated through the p+ type semiconductor 11 into the n+ type semiconductor 12; a plurality of first insulation layers 30 in the first and the second grooves formed by sintering, the first insulation layer 30 being adapted to separate and insulate the p+ type semiconductor 11 from the n+ type semiconductor 12 at both sides; a plurality of first conductive metal layers 40 coated on a central portion of the semiconductor wafer as a first conductive terminal 40 for soldering; and a plurality of second conductive metal layers 41 coated on an edge of the semiconductor wafer and extended to sides of the n+ type semiconductor 12 on the second surface of the semiconductor wafer to be in communication therewith as a second conductive terminal 41 for soldering. By utilizing the present invention, two separate conductive terminals are formed on top of each diode for electrically being coupled to the p+ type semiconductor 11 and the n+ type semiconductor 12 of each diode respectively.

After comparing the structures claimed in the present invention with those disclosed in the citation, it is apparent that, since the whole structure thereof are totally different with each other, the two soldered conductive terminals 154 and 16 formed by the citation are at two opposite sides on the same surface of the diodes 50, but one of the conductive terminals formed by the present invention is located at the central position on one surface of each diode and the other conductive terminals are located at two opposite sides on the same surface thereof.

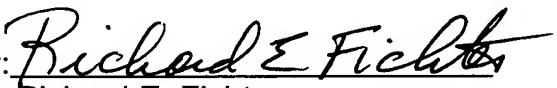
Therefore, Applicant does not believe that the characteristics of the presently claimed invention should be deemed as having been disclosed in the '237 citation. Accordingly, it is most respectfully requested that this rejection be withdrawn.

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In view of the above comments and further amendments to the claims, favorable reconsideration and allowance of all of the claims now present in the application are most respectfully requested.

Respectfully submitted,

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